

WHAT IS CLAIMED IS:

1 *Sub 27* 1. A transmitter for transmitting a stream of known symbols
2 and unknown symbols through a transmission channel to a first
3 receiver that receives the transmitted stream of known symbols and
4 unknown symbols distorted by intersymbol interference (ISI) and
5 reduces therein an ISI signal, wherein the transmitter comprises:
6 a known symbol distribution controller capable of
7 inserting a plurality of known symbol clusters into an outgoing
8 stream of unknown symbols in an optimum distribution in order to
9 improve the performance of the first receiver.

1 2. The transmitter as set forth in Claim 1 wherein said
2 known symbol distribution controller is capable of determining a
3 channel order, L , associated with the receiver.

1 3. The transmitter as set forth in Claim 2 wherein said
2 known symbol distribution controller determines the optimum
3 distribution according to a value of the channel order.

1 4. The transmitter as set forth in Claim 3 wherein said
2 known symbol distribution controller determines a minimum size of
3 each of the plurality of known symbol clusters according to the
4 value of the channel order.

1 5. The transmitter as set forth in Claim 1 wherein said
2 transmitted stream of known symbols and unknown symbols is received
3 by a plurality of receivers and wherein the known symbol
4 distribution controller is capable of determining a plurality of
5 channel orders, L_1 through L_n , wherein each channel order is
6 associated with a corresponding one of said plurality of receivers.

1 6. The transmitter as set forth in Claim 5 wherein said
2 known symbol distribution controller is capable of determining a
3 maximum one of the plurality of channel orders.

1 7. The transmitter as set forth in Claim 6 wherein said
2 known symbol distribution controller determines the optimum
3 distribution according to a value of the maximum channel order.

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1 8. The transmitter as set forth in Claim 7 wherein said the
2 known symbol distribution controller determines a minimum size of
3 each of the plurality of known symbol clusters transmitted to all
4 of the plurality of receivers according to the value of the maximum
5 channel order.

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6 9. A network comprising:

7 a plurality of receivers, each of said receivers capable
8 of receiving from a transmission channel an incoming stream of
9 known symbols and unknown symbols distorted by intersymbol
10 interference (ISI), wherein each of said receivers comprises a
11 block decision feedback equalizer capable of receiving the
12 transmitted stream of known symbols and unknown symbols distorted
13 by intersymbol interference (ISI) and reducing therein an ISI
14 signal; and

15 a transmitter for transmitting a stream of known symbols
16 and unknown symbols through a transmission channel to a first
17 receiver, wherein the transmitter comprises a known symbol
18 distribution controller capable of inserting a plurality of known
19 symbol clusters into an outgoing stream of unknown symbols in an
20 optimum distribution in order to improve the performance of a first
21 receiver.

10. The network as set forth in Claim 9 wherein said known symbol distribution controller is capable of determining a channel order, L , associated with the first receiver.

11. The network as set forth in Claim 10 wherein said known symbol distribution controller determines the optimum distribution according to a value of the channel order.

12. The network as set forth in Claim 11 wherein said known symbol distribution controller determines a minimum size of each of the plurality of known symbol clusters according to the value of the channel order.

13. The network as set forth in Claim 9 wherein said transmitted stream of known symbols and unknown symbols is received by the plurality of receivers and wherein the known symbol distribution controller is capable of determining a plurality of channel orders, L_1 through L_n , wherein each channel order is associated with a corresponding one of said plurality of receivers.

1 14. The network as set forth in Claim 13 wherein said known
2 symbol distribution controller is capable of determining a maximum
3 one of the plurality of channel orders.

1 15. The network as set forth in Claim 14 wherein said known
2 symbol distribution controller determines the optimum distribution
3 according to a value of the maximum channel order.

1 16. The network as set forth in Claim 15 wherein said the
2 known symbol distribution controller determines a minimum size of
3 each of the plurality of known symbol clusters transmitted to all
4 of the plurality of receivers according to the value of the maximum
5 channel order.

1 17. For use a network comprising a transmitter and a
2 plurality of receivers, wherein each receiver receives from a
3 transmission channel an incoming stream of known symbols and
4 unknown symbols distorted by intersymbol interference (ISI), and
5 wherein each receiver comprises a block decision feedback equalizer
6 capable of receiving the transmitted stream of known symbols and
7 unknown symbols distorted by intersymbol interference (ISI) and
8 reducing therein an ISI signal, a method of transmitting the known
9 symbols and unknown symbols comprising the steps of:

10 inserting a plurality of known symbol clusters into an
11 outgoing stream of unknown symbols in an optimum distribution
12 capable of improving the performance of a first one of the
13 receivers; and

14 transmitting the stream of known symbols and unknown
15 symbols according to the optimum distribution.

1 18. The method as set forth in Claim 17 further comprising
2 the steps of:

3 determining a plurality of channel orders, L_1 through L_n ,
4 wherein each channel order is associated with a corresponding one
5 of said plurality of receivers; and

6 determining a maximum one of the plurality of channel
7 orders.

1 19. The method as set forth in Claim 18 further comprising
2 the step of determining the optimum distribution according to a
3 value of the maximum channel order.

1 20. The method as set forth in Claim 19 further comprising
2 the step of determining a minimum size of each of the plurality of
3 known symbol clusters transmitted to all of the plurality of
4 receivers according to the value of the maximum channel order.